Oregon Health & Science University

Project Name ...

PHLAME: Promoting Healthy Lifestyles: Alternative Models' Effects

Principal Investigator ...

Diane Elliot, M.D.
Division of Health Promotion & Sports Medicine
OHSU C110, 3181 S.W. Sam Jackson Park Road
Portland, OR 97239-
tel. 503-494-6554 ; fax. 503-494-1310

Background / Significance of Problem ...

Compelling evidence indicates the benefits of regular physical activity, diets low in fat and high in fruits and vegetables, and maintenance of a healthy body weight; however, most Americans do not adhere to these recommendations. PHLAME's lifestyle objectives reflect those four behaviors, and the study compares a testing-plus-results-only control group and two worksite health promotion strategies: 1) a team-centered peer-taught scripted curriculum; and 2) one-on-one meetings with a trained counselor using motivational interviewing (MI) techniques. PHLAME's team-centered curriculum uses principles of adult learning and is grounded in social learning theory, with one's actions being influenced by 'external' observations, vicarious experiences and peers. MI is a client-centered communication strategy, which facilitates defining one's 'internal' motivation for change by resolving ambivalence and choosing means to actualize personal goals. PHLAME's subjects are professional firefighters. Despite their work demands, they have a high prevalence of sedentary lifestyles, obesity, hypertension, dyslipidemia and certain malignancies, and their work structure is a natural setting for a team-centered program.

Research Question ...

Our primary outcome measures for the prospective head-to-head comparison reflect PHLAME's four health promotion goals, potential mediating variables, stage of change and secondary consequences of those actions, e.g., lipid levels and blood pressure. Newer statistical methods, such as hierarchical linear and latent growth modeling, are being used to validate hypothesized model structure, and identify relationships and sequences among variables/mediators. The process assessments allows distinguishing effects of the interventions and their implementation.

Findings To-Date ...

- Randomization by fire station resulted in three similar groups. Year 1 attrition was also comparable among the three conditions, with approximately 83% returning for the second test. The physiological measures and individual survey items and constructs are primarily being assessed using autoregressive generalized estimating equations (GEE) and repeated measures GEE, which take into account the subjects-nested-at-stations design.

- Preliminary conclusions from the one-year follow-up data are that, by itself, the 'control' condition (testing and learning their results) improved and was associated with more regular physical activity and healthier eating habits. Despite that, both interventions achieved significant gains in all knowledge domains and significantly improved eating and physical activity habits, compared to the control group. In general, at one year, the team condition out performed the MI group, with greater changes in outcome measures. Currently, we are examining the year 1 (T2) follow-up data after incorporating 'dosage' measures, which for the team group, requires identifying issues concerning both attendance/fidelity for team sessions and time spent working with their assigned team. In addition, as a step toward profiling those who benefit most from an intervention, we added predictors to the GEE autoregressive construct analyses. Results are interesting, e.g., smokers did not do as well with team approach, and the plan is to use a general growth mixture modeling framework to identify subpopulations who would respond to the specific interventions.
- further improve and gains continued in the two intervention groups, with MI 'catching up' to the team condition. Our research group's recent activities have involved completing testing and applying for funding to continue to follow our subjects, assess the team-centered curriculum in other geographically dispersed fire departments and better understand MI for health promotion.

Implications ...

[for multibehavioral and multi-theoretical approaches to behavior change]

The process of change appears to vary with intervention format. The team strategy is a relatively novel approach for altering adults' health behaviors, and our findings indicate it may enlist influences not available to an individual format and provide a feasible, acceptable and effective means for health promotion. The team's 'one-size fits all' approach does not incorporate the transtheoretical model, and subsequent analyses are needed to define implications of participant variability. Our population and their work setting are unique. Characteristics of the team, such as task specific cohesion, appear to affect outcome. Similar curricula could be adapted for other settings, augmented with team-building activities and assessed for their effects. The individual and team characteristics relating to study outcomes, once identified, might allow appropriate application or sequencing of strategies for individuals and different population subgroups. Although the one-on-one strategy may seem more 'clinically' applicable, counseling using MI for health promotion is a departure from the current norm, and its success depends on clearly documenting its efficacy, identifying individuals who will benefit from its use and defining characteristics of effective MI.

Future Research Directions ...

In addition to the analyses mentioned, we have submitted proposals to continue to follow these subjects for durability of change, dissemination of the curriculum and analyses of Motivational Interviewing (MI) interactions. Because their mediation differs, combining team and MI may have additive or even synergistic effects. We also have applied to evaluate: 1) a peer-led team curriculum; 2) an individual MI plus peer-led team; 3) a blended MI-led team; and 4) testing and results only control group. Finally, MI for health promotion remains a 'black box,' and we are interested in combining our individual outcomes data with the more than 400 hours of taped MI interactions that we have cataloged to define critical MI behaviors and for whom and under what conditions is MI most effective.